# Common Core Standards - Resource Page

The resources below have been created to assist teachers' understanding and to aid instruction of this standard.

| Domain | **Standard:** 7.G.2 - Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. |
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| **Geometry**<br>**Draw, construct, and describe geometrical figures and describe the relationships between them.** | Questions to Focus Learning<br>How do you know if the conditions you have been given will produce one triangle, two triangles, or no triangle?<br><br>Conditions will sometimes produce figures we are not expecting. It is important to recognize the situations when the given information will produce more than one figure, or no figure at all.<br><br>Student Friendly Objectives<br>*Knowledge Targets*<br><br>I know the sum of angle measurements of a triangle is 180 degrees.<br>I know how to use a ruler and a protractor.<br><br>*Reasoning Targets*<br><br>I understand not all combinations of side measurements or angle measurements produce triangles.<br>I understand some combinations of measurements will produce more than one triangle.<br><br>*Product Targets*<br><br>I can draw geometric shapes with given conditions.<br>I can construct triangles given side or angle measurements.<br><br>Vocabulary<br><br>construction<br>included angle<br>non-included angle<br>unique triangle |

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| | Teacher Tips<br><br>Math Core Principles Newsletter 7.G.2<br><br>In previous grades, students have studied angles by type according to size: acute, obtuse and right, and their role as an attribute in polygons. Now angles are considered based upon the special relationships that exist among them: supplementary, complementary, vertical and adjacent angles. Provide students the opportunities to explore these relationships first through measuring and finding the patterns among the angles of intersecting lines or within polygons, then utilize the relationships to write and solve equations for multi-step problems.<br><br>Real-world and mathematical multi-step problems that require finding area, perimeter, volume, surface area of figures composed of triangles, quadrilaterals, polygons, cubes and right prisms should reflect situations relevant to seventh graders. The computations should make use of formulas and involve whole numbers, fractions, decimals, ratios and various units of measure with same system conversions.<br><br>Vertical Progression<br><br>8.G.1 - Verify experimentally the properties of rotations, reflections, and translations. Specifically:<br>8.G.1a - Verify that through rotations, reflections, and translations, lines are taken to lines, and line segments to line segments of the same length.<br>8.G.1b - Verify that through rotations, reflections, and translations, angles are taken to angles of the same measure.<br>8.G.1c - Verify that through rotations, reflections, and translations, parallel lines are taken to parallel lines.<br>8.G.2 - Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.<br>8.G.6 - Explain a proof of the Pythagorean Theorem and its converse.<br>8.G.8 - Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. |

The above information and more can be accessed for free on the Wiki-Teacher website.
Direct link for this standard: 7.G.2